

Listing of the Claims

This listing of the claims will replace all prior versions, and listings of the claims in the Application.

1. (Currently Amended) A bioactive, biodegradable ~~composite material comprising a~~ fibrous composite of gel-like oxides materials and biodegradable polymers, ~~wherein fibers of the~~ fibrous composite ~~comprises gel-like oxide materials with nanometer-sized~~ comprising: a plurality of fibers self-assembled as a fibrous preform comprising pores in an interconnecting-porous configuration, wherein (i) each fiber has an inner core, wherein the inner core comprises mesopores; (ii) macropores are interspaced between and among the interconnecting fibers of the porous configuration; and (iii) nanopores ranging in size from 1.5 to 10 nm in diameter are on the surface of the interconnected fibers; and wherein the resulting fibrous composite has an overall surface area of greater than 1000 m²/g.
2. (Previously Presented) The fibrous composite of claim 1, comprising silica and other oxides.
3. (Currently Amended) The fibrous composite of claim 2, wherein the oxides, are selected from the group consisting of SiO₂, TiO₂, ZrO₂ and Ta₂O₅, ~~are bioactive and capable of inducing bone-like apatite growth.~~
4. (Currently Amended) The fibrous composite of claim 3, wherein silanol (SiOH) and similar metal-OH groups form on ~~of~~ the oxide surfaces.
5. (Currently Amended) The fibrous composite of claim 1, wherein the biodegradable polymers are selected from the group consisting of polylactic acid (PLA), ~~and~~ polyglycolic acid (PGA), poly(lactic-co-glycolic) acid (PLGA) copolymer, dextran, collagen, poly(p-dioxanone), and poly(propylenefumarate), as well as mixtures thereof, and co-polymers thereof.
6. (Currently Amended) The fibrous composite of claim 1, further comprising a ~~drug~~ bioactive agent or therapeutic composition ~~to be delivered from the fibrous composition.~~
7. (Currently Amended) The fibrous composite of claim 6, wherein the ~~drug or therapeutic composition~~ bioactive agent comprises a ~~native or recombinant~~ bone morphogenic protein, ~~or~~

bone growth enhancing factors~~(e)~~ factors, drug, growth hormone, vitamin, extract, demineralized bone matrix, dye, genetic material, or combinations thereof, from natural or recombinant sources.

8. (Canceled)

9. (Currently Amended) The fibrous composite of claim 1, wherein the fibers are porous, and wherein ~~a percentage ranging from~~ at least 30%–90% of the porous fibers are hollow.

10. (Previously Presented) The fibrous composite of claim 9, wherein at least 50% of the porous fibers are hollow.

11. (Currently Amended) ~~A controlled rate drug or therapeutic compound~~ bioactive, biodegradable, controlled-release delivery system composition, comprising the fibrous composite of claim 6 1 and ~~the drug~~ a bioactive agent or therapeutic composition incorporated therein for release from the system upon degradation of the biodegradable fibrous composite.

12 – 19. (Canceled)

20. (Currently Amended) A method for delivering a ~~drug~~ bioactive agent or therapeutic composition in or to an animal using the fibrous composite of claim 1, comprising ~~administering to said animal at a site needed, the bioactive, biodegradable composite material of claim 1;~~
incorporating the bioactive agent or therapeutic composition within the fibrous composite; and
administering to the animal the fibrous composite and the bioactive agent or therapeutic composition incorporated therein.

21-26 (Canceled).

27. (New) The method of claim 20, wherein the animal is a human.

28. (New) The method of claim 20, wherein the bioactive agent comprises a drug, growth hormone, bone growth enhancing factor, vitamin, extract, demineralized bone matrix, bone morphogenic protein, dye, or genetic material, or combinations thereof, from natural or recombinant sources.

29. (New) A method for delivering a bioactive agent or therapeutic composition in or to an animal using the delivery system of claim 11, comprising:

administering to the animal the fibrous composite and the bioactive agent or therapeutic composition incorporated therein; and
effecting release in the animal of the incorporated bioactive agent or therapeutic composition upon degradation of the biodegradable fibrous composite.

30. (New) The method of claim 29, wherein the animal is a human.

31. (New) The delivery system of claim 11, wherein the bioactive agent comprises a drug, growth hormone, bone growth enhancing factor, vitamin, extract, demineralized bone matrix, bone morphogenic protein, dye, or genetic material, or combinations thereof, from natural or recombinant sources.

32. (New) A method of inducing or enhancing bone growth, or a combination thereof, in an animal using the fibrous composite of claim 1 at a site where bone growth is desired in the animal, the method comprising:

selecting or shaping the fibrous composite to a shape and size appropriate for the site in the animal where inducing or enhancing bone growth, or a combination thereof is desired;

implanting the selected or shaped fibrous composite in the animal at the desired site to induce or enhance bone growth, or a combination thereof, at the site of the implant.

33. (New) The method of claim 32, wherein the animal is a human.

34. (New) The method of claim 32, further comprising:

incorporating a bioactive agent or therapeutic composition within the fibrous composite;
and

effecting release in the animal of the incorporated bioactive agent or therapeutic composition upon degradation of the biodegradable fibrous composite.

35. (New) The method of claim 34, wherein the bioactive agent comprises a drug, growth hormone, bone growth enhancing factor, vitamin, extract, demineralized bone matrix, bone morphogenic protein, dye, or genetic material, or combinations thereof, from natural or recombinant sources.

36. (New) The method of claim 34, wherein the animal is a human.